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Study of Perceived Stress and Stressors Among Undergraduate Medical Students in Maharashtra

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Abstract:

Introduction: The MBBS course is believed to be one of the most challenging and stressful courses for undergraduate students. While some amount of stress is required to transform medical students into doctors, high amounts of stress may adversely affect the cognitive performance and personal lives of students.

Objectives: This study aims to analyze the perception of stress and stressors in 1st and 2nd year MBBS students and to compare the findings between subgroups of the study such as age, gender, year of study, etc.

Methodology: Students were asked to fill out a questionnaire which assessed the perceived stress using the 14-question type variant of perceived stress scale (PSS-14). They were also asked to identify 33 stressors belonging to academic, emotional, physical, and social categories and grade the intensity of stress relating to each factor ranging from 1 (not stressful) to 5 (severely stressful).

Results: Out of the total 222 responses, 56.3% of all students perceived themselves to be under high according to their PSS score (>28), while 42.3% perceived themselves to be under moderate stress. Students younger than 20 years, female students, 1st-year students, and day scholars reported higher perceived stress. Students also identified academic and emotional stressors as major determinants of higher perceived stress.

Conclusion: A majority of students reported high perceived stress due to various academic, emotional, and physical stressors. There is a need for training students to effectively manage and relieve stress so that it does not adversely affect their personal and professional lives.

Key Words: Academic, Emotional, Financial, MBBS, Questionnaire, Stressors, Undergraduate.

Introduction:

MBBS students face varying levels of stress throughout their undergraduate studies. The stressors vary according to the year of study and demographic causes such as age, gender, socio-economic circumstances, etc. All over the world, it is observed that students of health professions experience high levels of stress during their undergraduate study period. [1] Various different studies from developing countries including India [2,3], Pakistan [4], [5], Nepal [6], and Malaysia [5] have also reported stress among undergraduate medical students. Students' emotional, social, physical, and family problems may also contribute to their stress and influence their academic performance and learning ability. [4]. Other factors like age, gender, ethnicity also influence the severity of stress. Three main categories viz academic pressures, social issues, and financial problems are mentioned. [2] Various published studies report the proportion of stressed students between 40-70%. [2, 3, 4, 5, 6].

A study carried out by Shubhada Gade et al. [7] aimed to identify students who are more susceptible to stress in the beginning itself so that essential support could be provided to them.

This study aims to determine the level of stress and find the stressors among 1st and 2nd-year undergraduate MBBS students in medical colleges of Maharashtra, by using the self-reported perceived stress scale (PSS-14), which comprises of 14 questions. The PSS-14 was initially developed by Cohen et al. in 1983 and has subsequently been modified into a 10 and 4 question format [8]. Studies have proven it to be a valuable tool in assessing perceived stress with acceptable psychometric properties [9].

Statement of the Problem:

MBBS students face varying levels of stress throughout their undergraduate studies. The stressors vary according to the year of study and demographic causes such as age, gender, socio-economic, etc. 1st and 2nd-year MBBS students in medical colleges of Maharashtra perceive stress due to various stressors. The potential negative effects of high amounts of stress on medical students include impairment of functioning in classroom performance and clinical practice, stress-induced disorders, and deteriorating performance [10].

Aims and Objectives:

Primary Objective: To assess perceived stress among MBBS students.

Secondary Objectives:

1. To assess the level of perceived stress among 1st and 2nd-year MBBS students.
2. To identify sources of stress and their severity.
3. To compare the level of perceived stress and stressors between the subgroups of the study participants based on gender and year of study.

Methodology:

Type of Study: Questionnaire-based cross-sectional observational study.

Sampling Method: Convenience Sampling from 1st and 2nd-year MBBS undergraduate students of various medical colleges of Maharashtra.

Period of Study: January 2023 to April 2023.

Place of Study: Maharashtra, India.

Inclusion Criteria: MBBS students of the first two years studying in Maharashtra who gave consent to fill up their questionnaire.

Exclusion Criteria:

1. Medical undergraduate students of remaining years.
2. Students from disciplines other than MBBS.
3. MBBS students studying outside of Maharashtra.
4. MBBS students who refuse to give consent.

Scientific Tools:

1. Questionnaire of Perceived Stress Scale 14 questions - PSS 14 of Cohen [8]: For each question, answering options are from 0 - 4: 0 - Never 1 - Almost Never 2 - Sometimes 3 - Fairly Often 4 - Very Often Individual scores on the PSS can range from 0 to 56 with higher scores indicating higher perceived stress. 0-13 would be considered low stress. 14-28 would be considered moderate stress. 28-56 would be considered high perceived stress.
2. 33 items questionnaire to identify Stressors: Stressors are divided into four categories- academic, social, physical, and emotional. Likert's 5-point scale was used to capture the intensity of stress on each factor. The scaling ranged from 1 (Not stressful) to 5 (Severely stressful).

Independent Variable: 1st and 2nd-year MBBS Students - males and females.

Dependent Variable: i) Perceived Stress Scale ii) Stressors

Statistical Analysis:

- Primary data was collected through Google Forms Questionnaire.
- Collected data was derived in the Microsoft Excel spreadsheets 2016. Statistical analysis was done on IBM SPSS STATISTICS VERSION 20.
- p value < 0.05 was considered significant and p value < 0.01 was considered highly significant.

Results:

A total of 222 responses were obtained from students of 1st and 2nd-year MBBS students studying in medical colleges of Maharashtra, out of which, 66 respondents were studying in 1st year (29.7%) and 156 were from 2nd year (70.3%). Median age of respondents was 20, out of which, 109 were male (49.1%) and 113 were female (50.9%).

75 respondents were day scholars (33.78%) whereas 147 were living in a hostel (66.22%). 154 respondents were from an urban residence (69.37%) while 68 were from a rural residence (30.63%).

Median PSS score of all respondents was 28. A majority of respondents (56.3%) perceived to be under high stress (PSS score >28), while 42.3% percent of respondents perceived to be under moderate stress (PSS score from 14-28) and only 1.4% perceived to be under low stress.

Table 1. Distribution of PSS scores categories:

PSS total score (Range of Score)	Number	%
Low stress (0-13)	3	1.4
Moderate stress (14-28)	94	42.3
High perceived stress (>28)	125	56.3
Total	222	100.0

Univariate analysis for risk assessment of factors responsible for high stress revealed that age (<20) was an important determinant of stress (p = 0.0051). 76.19% of the 42 students younger than 20 years were highly stressed. Female students also reported higher stress than male students (p = 0.004) with 54.87% of female students being highly stressed and only 35.78% of male students being highly stressed. Day scholars were more

stressed than students residing in hostels ($p = 0.164$) with 52% of day scholars under high stress and only 42.18% of students residing in hostels being highly stressed. 1st-year students reported more stress ($p = 0.159$) – 64.81% of 1st-year students were under high stress and those belonging to an urban background reported higher levels of stress – 52.94% were under high stress ($p = 0.5$).

Table 2. Comparison of median PSS scores between gender subgroups:

Total PSS Score	Overall	Gender		P	Median
		Male	Female		
High Stress	Low Stress	High Stress	Low Stress		
28	9	39	(35.78%)		70

Table 3. Comparison of median PSS scores between accommodation subgroups:

Total PSS Score	Accommodation	P	Home	Hostel	High Stress	Low Stress	High Stress	Low Stress
39 (52%)	36 (48%)	62	85	0.164				

Students also cited physical and academic stressors such as everyday travel to college and back and personal and physical health (physical) and competition for postgraduate seats, too many internal examinations, and inability to cope with a tremendous amount of knowledge (academic) as major reasons for stress. Important emotional stressors included fear of being unable to catch up if behind and lack of time to do assigned college work. Concern about physical appearance was more stressful for male students than female students ($p = 0.003$) and more stressful for students living in hostels than day scholars ($p = 0.0001$). Respondents did not report high stress due to social stressors.

Table 4. Descriptive statistics of assessment questions:

Stressors	Number of Questions	Average Total Score	Average Score Out of 5
Academic Stressors	9	34.1	3.1
Physical Stressors	4	40.4	3.7
Social Stressors	5	11.7	1.1
Emotional Stressors	15	11.6	1.1

Table 5. Descriptive and Comparative Statistics of Stressors:

Stress Factor (Stressor)	Overall	Gender		P	Accommodation	P
		Male	Female			
	Median	IQR	Number of Students with Scores > cut off	Number of Students with Scores > cut off		Home
Competition for postgraduate seats (A)	4	2	33	30		0.538
College timings (A)	3	2	31	41		0.212
Amount of assigned classwork (A)	3	2	27	28		0.999
Inconsistency of feedback on your work between different instructors (A)	3	1	31	30		0.752
Too many internal assessment exams	4	2	57	39		0.008**

(A)					
Inability to cope with a tremendous amount of knowledge (A)	4	1	41	39	0.63
Generation gap between teachers and students (A)	2	2	32	25	0.217
Lack of communication skills (A)	3	2	54	53	0.694
Difficulty to cope with English medium (A)	1	1	47	60	0.137
Fear of failure in exam (E)	3	2	34	24	0.091
Lack of time to do assigned college work (E)	3.5	1	35	40	0.605
Fine imposed as punishment from time to time (E)	1	2	37	35	0.636
Quality of teaching (E)	3	3	44	58	0.101
Receiving criticism about the performance from the teachers (E)	3	2	22	27	0.505
Insecurity concerning professional future (E)	3	1.7	5	51	47
Fear of being unable to catch up if behind (E)	4	1	47	56	0.336
Inapproachability of teaching staff (E)	3	2	25	16	0.092
High expectations of parents for performance (E)	2	3	33	36	0.799
Compulsion of uniform (E)	1	0	49	33	0.015*
Atmosphere created by the teachers (E)	2	2	51	51	0.805
Concern about physical appearance (E)	3	2	63	43	0.003**
Lack of home atmosphere in living quarters or hostels (E)	3	3	36	27	0.131
Getting involved in love affairs (E)	2	2.7	5	53	51
Feeling that you do not have time for personal hobbies and sports (E)	3	3	47	42	0.366
Lack of quiet surrounding/environment (P)	2	2	53	42	0.085
Food in canteen and hostel (P)	2	3	40	52	0.159
Everyday travel to college and back (P)	3	3	53	44	0.146
Personal and physical health (P)	3	2	52	46	0.294
Financial responsibilities (S)	2	2	40	35	0.367

Conflict with peers (S)	2	2	46	50	0.758
Indifferent/biased behavior of teachers (S)	2	2	57	51	0.286
Family atmosphere (S)	2	2	57	51	0.286
Inadequate social support (S)	2	2.7	5	57	51

Discussion:

This study aims to analyze the perceived stress among medical students of 1st and 2nd year MBBS in medical colleges in Maharashtra along with stressors such as academic, emotional, physical, and social factors and correlate the findings with sociodemographic factors such as age, sex, accommodation, and place of permanent residence. After students filled out the perceived stress scale (PSS-14), the majority of the respondents (56.3%) perceived that they were under high stress, as per the total PSS-14 score being greater than 28, out of a maximum score of 56 points. The statistically most significant factor for high stress was age below 20 years. Female students also reported higher levels of stress than their male counterparts. First-year students were relatively more stressed than second-year students. Day scholars and students belonging to an urban residence were also more stressed than students residing in hostels and rural areas, respectively. But urban residence is not a statistically significant factor for high stress, in comparison to age below 20 years and female gender.

Students were also asked to grade how various stressors belonging to academic, emotional, physical, and social categories affected them. Academic stressors such as competition for postgraduate seats, too many internal examinations, and inability to cope with a tremendous amount of knowledge were the most important. Emotional stressors such as fear of being unable to catch up if left behind and lack of time to do assigned college work also affected students greatly. Interestingly, concern about physical appearance affected males and students residing in hostels more than females and day scholars, respectively. Students also reported physical stressors such as everyday travel to college and back and personal and physical health. Social stressors did not have a large impact on students' stress.

Conclusion:

A majority of 1st and 2nd year MBBS students are under high stress, with the perceived stress being higher among female students, students younger than 20 years, 1st-year students, and day scholars. Students perceive mainly academic, physical, and emotional stressors to be associated with high stress such as competition for postgraduate seats, too many internal examinations, inability to cope with a tremendous amount of knowledge, lack of time for college work, etc. This calls for a detailed analysis and assessment of the MBBS curriculum for the 1st and 2nd years to make it less stressful for the students. Both organizational and individual methods of reducing stress should be implemented in medical colleges. Students should also have access to proper counseling and therapeutic facilities to help reduce stress. While the MBBS course is demanding and rigorous and is often associated with high levels of stress, it is important to ensure that students do not suffer from the adverse effects of this high stress and are trained in methods to effectively cope with the stress so as to not let it derail their medical education and personal lives.

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